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Change To LIFO: Management appraises the results

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Inflation rose to double digits in 1974, a phenomenon which was accompanied by high interest rates, high levels of inventory, and production and capacity shortages. These factors combined to create a unique and difficult climate in which businesses had to operate. In an attempt to deal with this climate, many corporations adopted the last-in, first-out (LIFO) inventory accounting method to remove the "inventory profits" caused by inflation, and to reduce income taxes. The corollary against these benefits derived from LIFO is that, due to the requirement of Internal Revenue Code Section 472 (c), if LIFO is used for tax purposes it must also be used for reporting — thus, lowering reported earnings.

Concurrent with the above events, common stock equities were experiencing one of the worst markets since the 1930s. With the high rate of inflation, it seemed a prime time to make the switch to LIFO. In fact, some of the financial media[1] expressed a belief that intelligent investors would react with favor to an adoption of LIFO.

What have been the results of this switch in accounting methods? Has the impact been as dramatic to corporate profits and tax revenues as theorists and politicians claimed it would be? What criteria influenced management decisions and, in retrospect, is management satisfied with their decisions? The study reported herein gives answers to some of these questions.

Historical Perspective of LIFO

In years past accounting disclosure rules as provided by APB Opinions 20 and 28, FASB Statement 3, and ASR 159, required that all details of LIFO switch be reported including the differences in earnings resulting from the change in accounting methods, thus providing sufficient data for the market analyst to make comparisons on the basis of what the earnings would have been without the switch.

According to a study by Copeland, Wojdak and Shank, three solutions to the LIFO dilemma were suggested.

> First, those companies in positive profit-difference industries can use LIFO for accounting purposes and FIFO for tax purposes.
>
> Second, businesses that face rising prices and elect LIFO for tax savings can disclose the negative profit difference in their financial statements...
>
> Finally, under some circumstances, LIFO may be used for tax purposes by a subsidiary's operations on a recomputed FIFO basis.[2]

Although all these recommendations are consistent with the above mentioned accounting disclosure rules, only the first solution is practical for those relatively few industries in which such characteristics exist. With the release of Rev. Rul. 73-57 usefulness of the third solution was severely restricted. Then, the publication of Rev. Rul. 74-586 imposed stringent constraints on the amount and kinds of information disclosed, thus diluting the advantages cited in the second solution suggested. While it is recognized that Revenue Rulings are the lowest in rank order of the IRS rulings, these two rulings have been effectively enforced by threat of negation of the LIFO election.

Prior to 1974 few companies had adopted LIFO usage; 16 percent of the Fortune 500 industrials were using LIFO as their principle method of inventory costing in 1974. Also, one-third of the corporations electing LIFO applied it in combination with other methods. It appears then that businesses had been very reluctant to use LIFO, perhaps because of the controversy surrounding the method or perhaps because of the drop in earnings that must be reported in a year of adoption.

Yet, such a reason is contrary to the "efficient market hypothesis." Empirical evidence exists that supports the "efficient market hypothesis"[3]; and, there also is some evidence of a growing acceptance of the validity of the theory.[4]. It is theorized that the information derived from earnings flows, as they affect intrinsic stock values, will be discounted by the market; and, although lags may exist, the capital market is relatively efficient though not perfectly efficient. If the efficient market hypothesis works, then the sophisticated user of accounting information should have discounted the reported drop in earnings generated by application of an accounting method. Perhaps corporate managers failed to have confidence in the automatic market adjustment to the reported data. This lack of confidence may have been due to several studies whose results are not consistent with the efficient markets hypothesis, at least in its semi-strong form[5].

Study Procedure

Using the May 1974 *Fortune* 500 list, two types of companies were isolated: firms already using principally LIFO for their inventories in 1973; and firms which adopted LIFO during their fiscal 1974. This survey provided 166 companies in twenty-nine industries — classification according to Standard & Poors. The earnings and taxes of these companies were then examined to determine the effect of the LIFO change. The basic hypotheses of the study were that the influences triggering the switch to LIFO were: 1) the need for cash, 2) the desire to remove "illusory inventory profits" from the reported earnings, 3) the extremely poor performance of the equity market, and 4) the impetus added by other corporations in the same industry adopting LIFO. To test these assumptions, a questionnaire was sent to the controller or financial vice-president of each firm. In order to obtain adequate response, the questionnaire was deliberately simplified. A response rate of 66 percent was obtained which represents 110 firms responding (with 108 usable questionnaires), an exceptionally high rate for mail questionnaire replies.

LIFO'S Impact on Earnings and Taxes

Of the 166 companies in the *Fortune* 500 that switched some portion of their inventories to LIFO during 1974, 16 companies were already using LIFO principally and were extending this use, 119 began to use LIFO principally, and 32 continued to use either FIFO or average cost principally but switched a significant portion of their inventories to LIFO. Thirty of the 500 companies in the survey did not reveal their inventory pricing data in published statements in 1973 or 1974.[6]

The adoption of LIFO by these companies lowered total earnings by $2.8 billion or an average 16 percent decrease (Exhibit 1). Four of the corporations incurred losses which would not have been incurred if they had not changed to LIFO and two companies increased their losses. The largest dollar impact on a single firm's earnings was on Dow Chemical whose earnings were lowered by $271 million. The largest percentage reduction of 172 percent was incurred by Roper Corporation, which reported a loss due to the change over. The highest percentage impact for a company which did not incur a loss was 96 percent for Scott Paper. The switch caused earnings reductions of over 50 percent for thirteen companies in the sample, while another thirty firms had reductions in excess of one-third. Also, for the companies adopting LIFO for a significant portion but retaining another method for the majority of their inventories, the results were as dramatic.

The average tax saving and consequent increase in cash flow was $7.1 million. Dow Chemical again scored the largest dollar impact with a tax saving of $127,919,000. It is apparent that the adoption of LIFO was dramatic both in terms of earnings reductions and tax savings.

LIFO Use by Industry

Previous studies[7] have found that LIFO was particularly effective for industries in which profits were sensitive to price increases. This study bears out the previous findings. For example, in the textile industry, in 1973 only five of the twelve companies were principally using LIFO. Three of the five extended their use of LIFO in 1974 and another three switched predominately to the use of LIFO, bringing to eight the number valuing their inventories principally by the LIFO method.

Three other industries not mentioned in prior studies had significant LIFO adoptions in 1974. The most striking change was in the tire and rubber industry. Of the six companies in this study, only one used LIFO primarily in 1973, yet five of the six were using LIFO primarily by the end of fiscal 1974. The chemical industry also had a large number of conversions to LIFO, from two of the total of thirty-three using it in 1973 to twenty-three using LIFO by the end of fiscal 1974. Interestingly, the industry which began the use of LIFO, the petroleum industry, had only thirteen of its twenty-eight companies predominately on LIFO in 1973, but twenty-two were using LIFO principally and another two had switched their domestic inventories to LIFO completely by the end of fiscal 1974.

Results of the Questionnaire

Following are the responses to the questionnaire which was used to determine the influences affecting management's decision to adopt LIFO and their opinions regarding their decision for adoption.

Management's Thoughts on Industry Use of LIFO

Management's appraisal of the use of LIFO is revealed by the response to Question No. 3, as shown in Exhibit 1.

EXHIBIT 1
RESPONSES TO QUESTION NO. 3

Do you feel that it would be beneficial for all the companies in your industry to use LIFO?

Yes	51
No	15
Not necessarily	6
Probably	3
Most have	7
No answer	10
Other comment	16
	......
	108

Surprisingly this question generated many comments, and it was also the most unanswered question. Thirteen of the comments dealt with the effect of the individual nature of a company's situation on the decision, six of the respondents felt that LIFO would be beneficial for comparative purposes, and five companies felt that LIFO is beneficial in general due to the present business situation.

It is important to note that these responses were from top level management, i.e., either the controller or financial vice president. Obviously, as these companies are among the 500 largest industrial firms, many of them are highly diversified and cannot really be classified as being in one industry. There was no consensus on Question No. 3. Many managements demonstrated that the switch to LIFO is a highly individualized decision, depending upon a company's pricing methods, capabilities, economic circumstances and the timing of the switch.

Influences on the LIFO Decision

As can be seen from the previous findings, the adoption of the LIFO inventory method of accounting can produce tremendous tax savings. Numerous authorities[8] have felt that tax benefits were the only reasons for the use of LIFO.

EXHIBIT 2
RESPONSES TO QUESTION NO. 1

Which of the following choices describes the reason(s) your company switched to LIFO in 1974? Please rank your choice if more than one is appropriate.

Reasons	First	Second	Third	Fourth
"a"	46	19	15	0
"b"	14	16	4	0
"c"	22	25	7	0
"d"	0	2	4	4
"e"	0	0	2	0
"a&c"	3	0	0	0
"b&c"	16	7	0	0
"a&b&c"	7	0	0	0

a) More accurate measurement of real profit
b) Possible reduction in income tax liability.
c) Cash flow improvement
d) Switch to LIFO by other companies in your industry.
e) Other (please specify).

The first question in the questionnaire was an attempt to determine to what extent the tax savings and the consequent increased cash flow led to the adoption of LIFO in 1974 and to what extent the companies were influenced by other factors, such as the desire to express earnings without "illusory inventory profits" and the impetus to change by the switch of other companies in the same industry.

Although the tax savings inherently leads to increased cash flow, the two factors were separated because of the differences in terminology and possibly by differences in motivation.

As can be seen, the more accurate measurement of real profit was the most pervading influence as eighty companies found it to have influenced their decision, while fifty-four firms found the increased cash flow to have affected their decision and thirty-four were influenced by the reduced tax liability.

Significantly, despite the lemming-like appearance of LIFO adoptions in some industries, only ten firms responded that the switch to LIFO by others in their industries had influenced their decision.

Another interesting finding is that not one company designated the "reduction in tax liability" to be the only influence. This is true despite the fact that 18 firms indicated the "more accurate measurement of real profit" to be the only influence and seven companies indicated "the increased cash flow" as the only influence. Of course, since so many companies in public discussions have tried to play down the importance of the tax benefits in order not to incur the righteous wrath of politicans, it is realistic to recognize that prudence guided their responses.

The Stock Market's Influence

Question No. 4 was included to determine if the 1974 bear market affected the decisions of management.

EXHIBIT 3
RESPONSES TO QUESTION NO. 4

Did the poor price performance of the equities in the stock market in 1974 influence your decision to switch to LIFO?

Yes	12
No	94
No answer	2
	108

Of the twelve which stated that the poor performance of the market did affect their decision, three qualified their answer by stating that it was a very minor consideration. One respondent said, "To a limited extent we were influenced by our analysis in that a decrease in earnings due to LIFO would not have an adverse impact on our stock price."[9] Another manager stated that the bear market "provided the opportunity to switch to LIFO and gain tax savings without further impairing P/E ratio."[10] Two firms responded with the common belief that they felt their firm's stock price could not get much lower, and hence, the switch. Several companies also commented that the adoption of LIFO had not caused a negative reaction to their stock prices.

Of the ninety-four companies who responded that the low equity prices had not affected their decision to adopt LIFO, four did remark that the stock market had been a minor consideration and three companies stated their belief that the stock market would respond favorably to LIFO. Another company that responded negatively did consider the stock market but "determined there would be no significant effect."[11]

The responses to this question refuted our premise that the bear market was a leading influence on adoptions of LIFO.

Management's Evaluation of LIFO in Retrospect

As the use of the LIFO inventory method of accounting involves substantially more record-keeping and is a more complex method than FIFO or average cost, an effort was made to determine if the firms which adopted LIFO had found that the mechanical problems outweigh the benefits; or, whether LIFO had lived up to management's expectations.

EXHIBIT 4
RESPONSES TO QUESTION NO.2

In retrospect, are you satisfied with the switch to LIFO?

Yes	107
No	1
	108

From the comments of the respondents, it can be said that although LIFO has accomplished its objectives, the side effects of its use are causing problems. Examples include the difficulty of estimating and reporting interim earnings, the difficulty of making internal analyses of segments of their businesses and the tremendous effort for data processing departments.

Due to the operational problems, it had been expected that more firms would be dissatisfied with LIFO. The consensus of the respondents seems to be summed up by one comment which stated: "The computational and accounting 'mechanics' of LIFO are quite complex; however, the cash flow benefits seem well worth the effort."[12]

Percentage of Inventories on LIFO

As accounting for LIFO inventory is a complex and costly procedure, it would seem that changing only a portion of the inventories to LIFO would create more problems than a complete change over. In an attempt to determine if there were any significant differences in degree of satisfaction between those companies changing the major portion and those changing only a small portion of their inventories, questions No. 5 and No. 6 were posed. As only one firm expressed dissatisfaction with LIFO, such differences could not be determined.

Despite the lack of possible correlations, there were several interesting aspects to the responses to these two questions. Seventy-six of the respondents were using LIFO for less than 10 percent of their inventory in 1973, with sixty-one of these companies having *no* LIFO inventories. Only seven companies were using LIFO for over 50 percent of their inventory in 1973 and only one of these used LIFO for 90 percent or more. Yet, in 1974, seventy-eight percent of the respondents changed over half of their inventory to LIFO.

Additional Thoughts of Management on LIFO

To gain insight into any additional problems, benefits, and/or thoughts about the LIFO inventory accounting method, a question was included requesting "Additional Comments."

All of the comments in this section dealt with the tax laws, with several of the comments dealing with the Internal Revenue Service's nondisclosure laws. In fact, one firm felt that it could not answer the questionnaire at all because it might jeopardize their LIFO election, one felt that it could not reveal its name because of the IRS nondisclosure rules, while others felt that the IRS should be compelled to change its position on the nondisclosure rule after a year of change.

Conclusions and Comments

One-third of the 500 largest companies switched to the LIFO inventory method of accounting in 1974. The effects of such a switch in accounting methods on the 166 companies studied was a reduction in earnings of $2.8 billion and the generation of a tax saving and consequent increase in cash flows of $1.18 billion.

The primary cause of the 1974 adoptions of LIFO cited by management was the more accurate measurement of real profit. The need for cash flow, a common problem in periods of inflation, was indicated by management as a major influence thus supporting our premise to this effect. The reduction of tax liability was third in ranking of reasons for their adoption of LIFO.

The premise that one impetus of the switch was that other corporations in the industry were switching was not borne out by the study. Also, little support was found for the hypothesis that the prime instigation was the poor performance of the equity market.

Discovery of industry trends not found in previous studies included significant LIFO adoptions in the tire and rubber industry, where five of the six companies were primarily using LIFO by the end of fiscal 1974. Another new industry highlighted by this study was chemicals. The chemical industry produced the greatest number of companies adopting LIFO, the largest dollar reductions to earnings, and the greatest total tax saving of any industry in the survey. This industry also provided the company, Dow Chemical, with the greatest individual impact in the survey. The third new industry found by the study was the machinery industry.

Although the number of changes to LIFO has slowed since 1974, the apparent long-term trend toward rising price levels and high interest rates continues to make LIFO an attractive alternative. The satisfaction of those companies that have adopted LIFO also adds to the continuing importance of LIFO for corporate management.

Editorial Note: Tabulation is available showing the impact on earnings and taxes for the 166 companies that switched to LIFO in 1974, and which were the basis of the foregoing analysis. Interested readers may obtain the tabulated data direct from the authors.

FOOTNOTES

[1]Thomas J. Bray, "New Sets of Books: More Companies Alter Accounting Methods to Neutralize Inflation," *The Wall Street Journal,* (October 7, 1974), p. 31; "Inflation Clouds the Real Meaning of Profits," *Business Week,* No. 2362. (December 21, 1974), p. 99; Peat, Marwick, Mitchell and Co., *LIFO: Business Economic Accounting and Tax Considerations When Converting to LIFO,* (New York: Peat, Marwick, Mitchell & Co., 1974), p. 7; and "Review and Outlook: The FIFO Crisis," *The Wall Street Journal,* (August 5, 1974), p. 10.

[2]Ronald M. Copeland, Joseph F. Wojdak, and John K. Shank, "Use LIFO to Offset Inflation," *Harvard Business Review* 49 (May-June 1971), pp. 91-100.

[3]Eugene F. Fama, "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance* (May 1970), pp. 383-417; and Michael C. Jensen, "Capital Markets: Theory and Evidence," *The Bell Journal of Economics and Management Science,* (Autumn 1972), pp. 357-398.

[4]Aharon R. Ofer, "Investors' Expectations of Earnings Growth, Their Accuracy and Effects on the Structure of Realized Rates of Return," *Journal of Finance,* (May 1975), pp. 509-523.

[5]Sanjoy Basu, "The Information Content of Price-Earning Ratios." *Financial Management,* (Summer 1975), pp. 53-64; David H. Downes and Thomas R. Dyckman, "A Critical Look at the Efficient Market Empirical Research Literature as it Related to Accounting Information," *The Accounting Review,* (April 1973), pp. 300-317; and Thomas R. Dyckman and David H. Downes, "Efficient-Market Empirical Research: Some Further Thoughts," unpublished manuscript, Cornell University, 1973.

[6]The survey discovered 167 companies that actually made the LIFO change; however, earnings impact figures could not be obtained for one of the 167 companies reducing the sample in the study to 166 companies.

[7]J. Keith Butters, *Effects of Taxation: Inventory Accounting and Policies,* (Cambridge: Harvard University Graduate School of Business Administration, Division of Research, 1949), p. 5; and Ronald M. Copeland, Joseph F. Wojdak, and John K. Shank, "Use LIFO to Offset Inflation," *Harvard Business Review* 49, (May-June 1971), pp. 91-100.

[8]Raymond J. Chambers, *Accounting, Evaluation, and Economic Behavior,* (Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1966), p. 354; Michael Chatfield, *A History of Accounting Thought,* (Hinsdale, Ill.: The Dryden Press, 1974), p. 168; and Paul Grady, ed., *Memoirs and Accounting Thought of George O. May,* (New York: The Ronald Press, 1962), p. 201.

[9]Questionnaire response from question No. 4

[10]Ibid.

[11]Ibid.

[12]Questionnaire response to question No. 2.